From HARDMAN III to IMPRINT

Sue Archer

Micro Analysis & Design,

In the Beginning…

- The path seemed clear… the vision was simple: Develop quantitative methods to predict MPT requirements and performance of new system designs

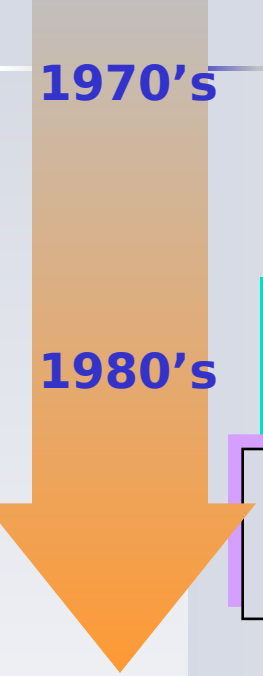
Oh yeah…
VERY early in acquisition

Awaiting a Call from Jonathan

- Broad agreement that tools should be focused on performance
- Struggles regarding “how”
  - Time vs. Accuracy tradeoffs
  - Impact of PTS variables on performance
  - General lack of data
- Important to support broad population of users

After a Call from Jonathan

IMPRINT:Evolution &



1970's

Concept Paper
~Air Force~

MPT data provided

Navy HARDMAN (Hardware vs. Manpower)

1980's

Automated process

Army HARDMAN II

MPT link to performance
- *PC* -

Army HARDMAN III

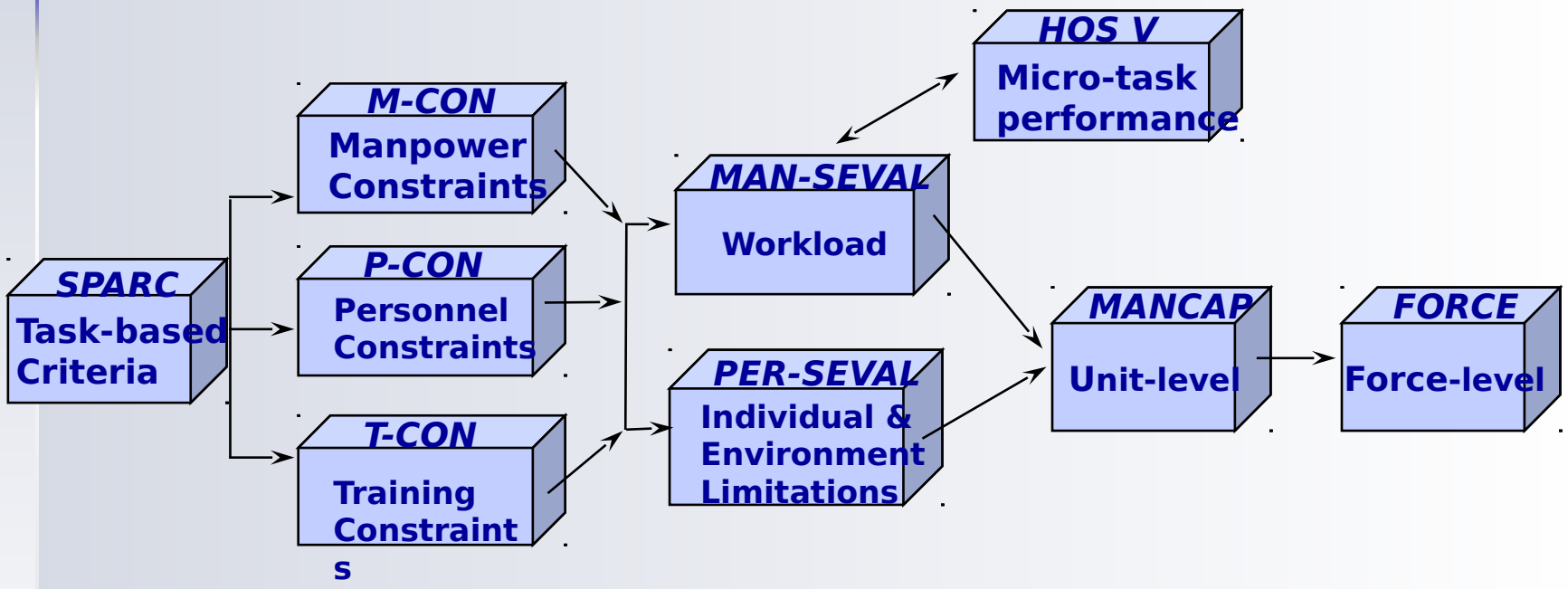
What Worked Well

- Multiple awards and multiple phases – “Best of Breed”
- Harvested AF and Navy ideas
  - Began a revolution… an opportunity to re-think
- Decision to include simulation
- Application of Project A data set
- PC-Based – even though DOS and RAM limits (512K) did constrain design
- Ready made user community
- Unique target audience
- Management support
- Engaged COTRs

Distribution Strategy

HARDMAN III MODULES

Hardware vs. Manpower



Definitions

SPARC: System Performance & RAM (Reliability, Availability, & Maintainability) Criteria Estimation

M-CON: Manpower Constraints Estimation

P-CON: Personnel Constraints Estimation

T-CON: Training Constraints Estimation

MAN-SEVAL: Manpower-based System Evaluation

PER-SEVAL: Personnel-based System Evaluation

MANCAP: Manpower Capabilities

FORCE: Force-level

HOS V: Human Operator Simulator V

First Tools of Their Type to Undergo VV&A

It Began to Catch On…

- So we needed something easier, cleaner, more integrated, more engaging…
  - Maintenance was difficult
  - Import and export was unwieldy
  - Large code sections were duplicative
  - Finally, Bill Gates helped out!

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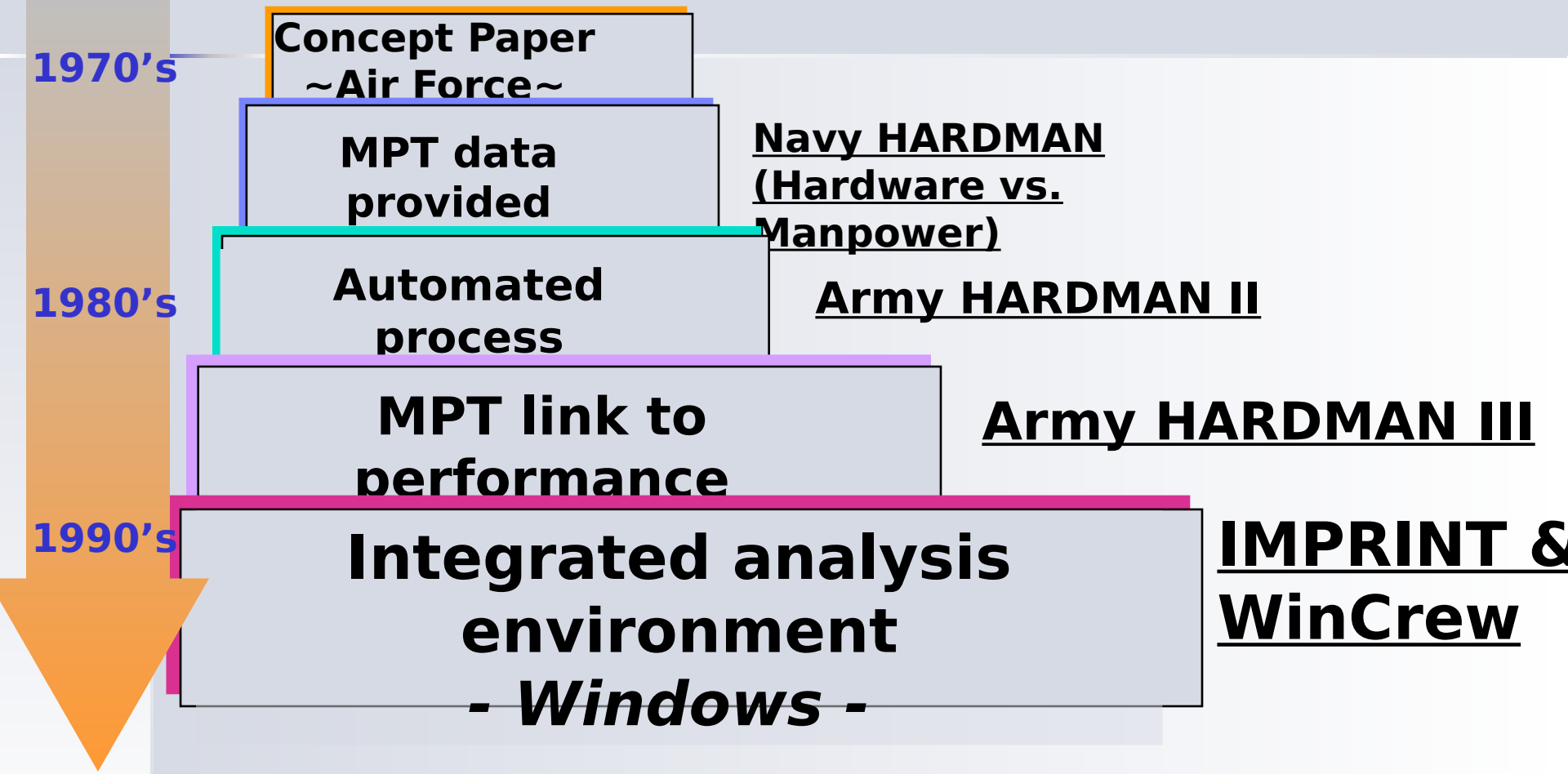
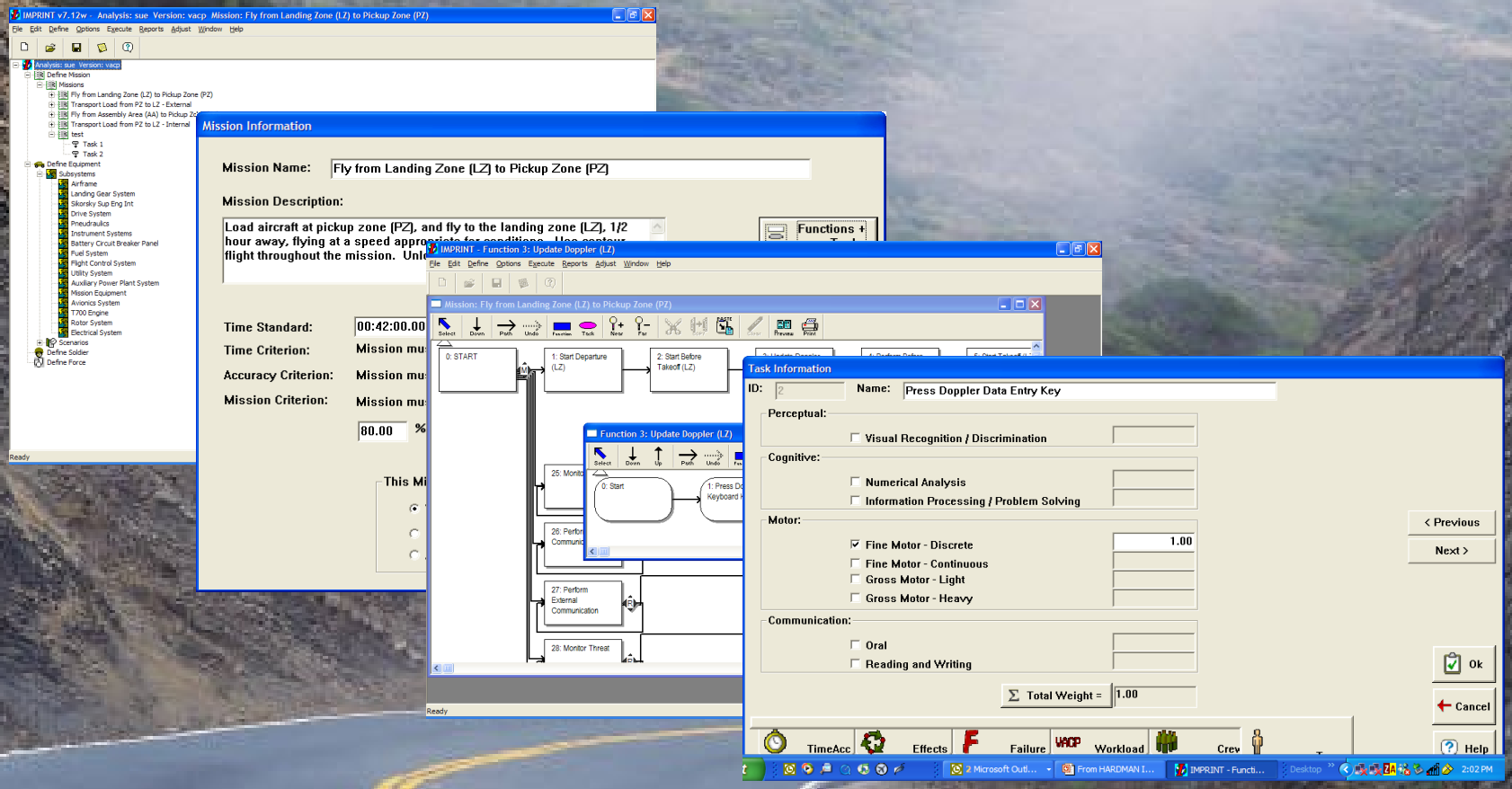


Windows Environment



- Increased power and flexibility
- Maintenance and installation is STILL difficult
- Product must keep pace with Army Future Force analysis needs

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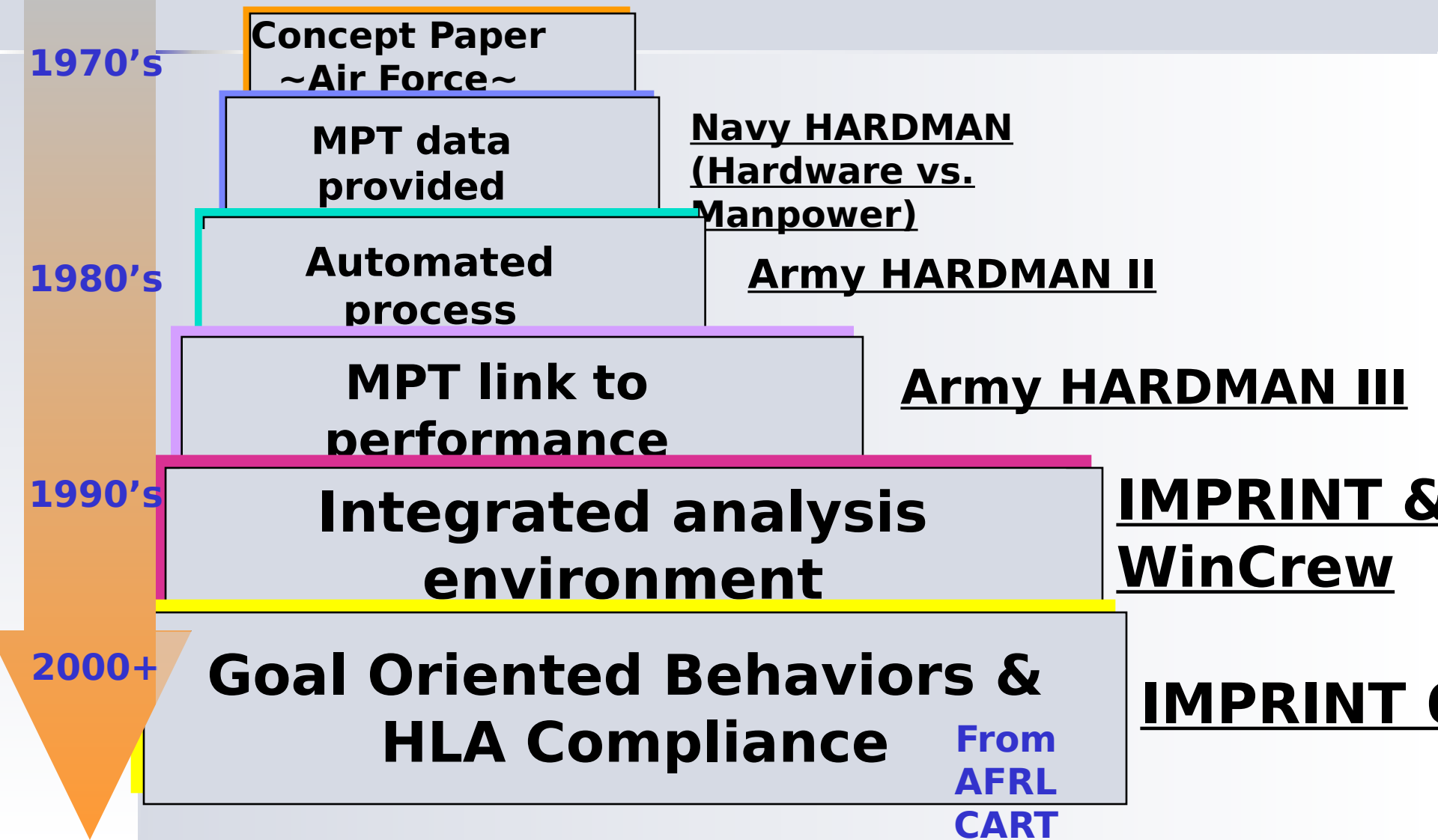


What Does IMPRINT Do?

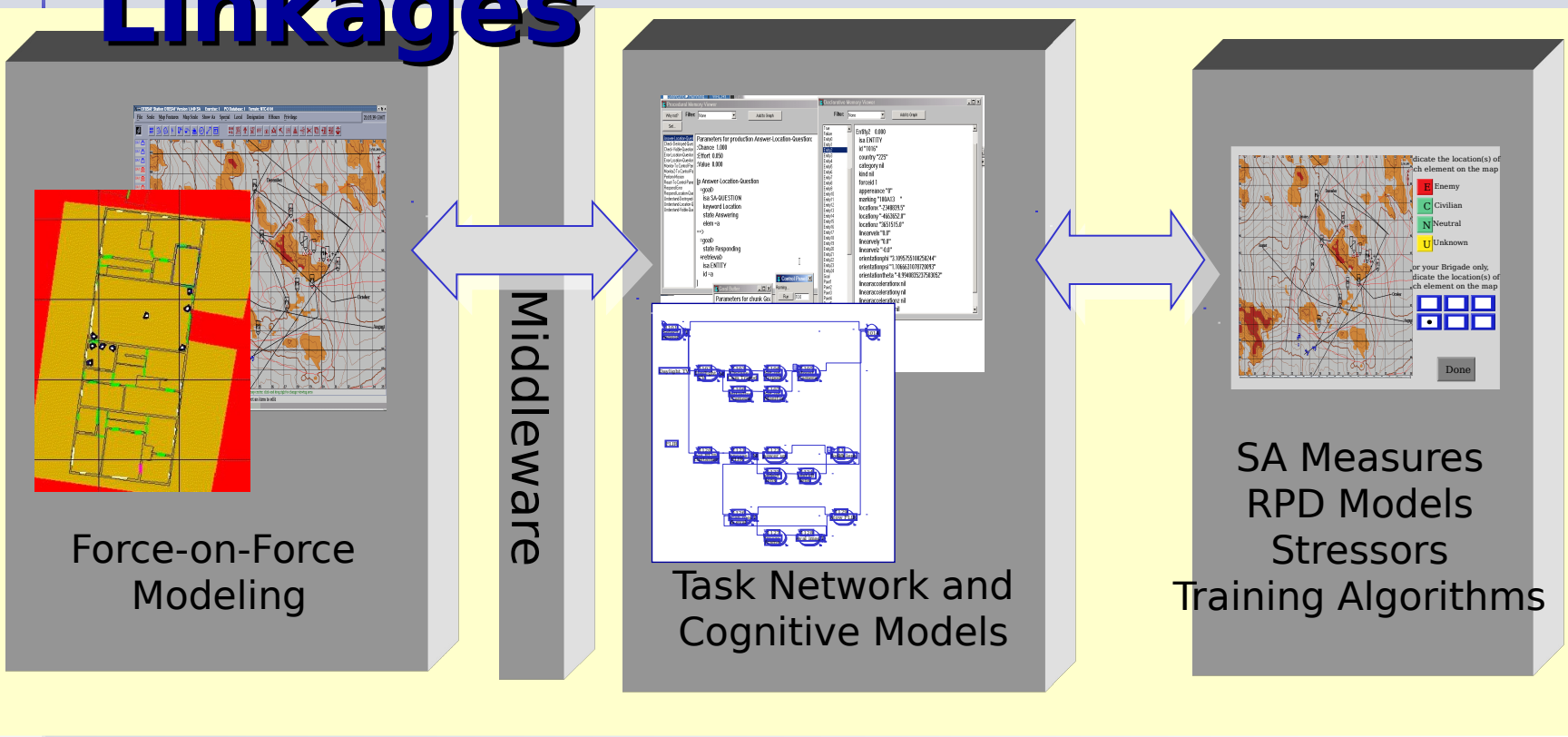
It helps you…

- Set realistic system requirements
- Identify future manpower & personnel constraints
- Evaluate operator & crew workload
- Test alternate system-crew function allocations
- Assess required maintenance manhours
- Assess performance during extreme conditions
- Examine performance as a function of personnel characteristics, training frequency & recency
- Identify areas to focus test and evaluation resources

Focus on Decisions

- **Support models for training and analysis by providing an improved capability to predict human decision making performance**
  - **What decision will be made?**
  - **Why?**
  - **How long will it take?**

Broadening the Scope through Powerful Linkages



- Does not require recompilation
- Environment supports external model calls
- Can be synchronized to real time

Toward the Future

- There is much left to do

Challenges

- Staying current in a dynamic environment (security, platform, 3rd party tools)
- Maintaining the “tool” orientation of IMPRINT
- Continuing to increase power and flexibility without burdening our users
- Continuing the quest to integrate with other modeling tools, models, and data environments

Acknowledgements